

Database of Steel and Alloy (Marochnik)

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Characteristics for grade VSt5ps (BCт5пс).

Grade :	VSt5ps (BCт5пс)
Classification :	Normal quality structural carbon steel
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Chemical composition in % for grade VSt5ps (BCт5пс)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.28 - 0.37	0.05 - 0.17	0.5 - 0.8	max 0.3	max 0.05	max 0.04	max 0.3	max 0.3	max 0.08

Temperature of critical points for grade VSt5ps (BCт5пс).

$Ac_1 = 730$, $Ac_3(Ac_m) = 825$, $Ar_3(Arc_m) = 815$, $Ar_1 = 690$

Mechanical properties under T=20°C for grade VSt5ps (BCт5пс)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
			535	330	25	52	640	
Steel hotrolled	to 20		490-630	285	20			As-delivered state
Steel hotrolled	20 - 40		490-630	275	19			As-delivered state
Steel hotrolled	40 - 100		490-630	265	17			As-delivered state

Technological properties for grade VSt5ps (BCт5пс)

Weldability:	limited weldability.
Flakes :	not predisposed
Temper brittleness:	not predisposed

Physical properties for grade VSt5ps (BCт5пс)

T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m ³	J/(kg·Grade)	Ohm·m
20	1.98			7850		
100	1.96					
200	1.86					

300	1.75					
400	1.67					
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade VSt5ps (BCτ5nc)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	England	European	Italy	Poland	Czechia
-	DIN, WNr	JIS	BS	EN	UNI	PN	CSN
A570-50	1.0507 St50-2 St55	STKM16A	CDS7	S355JOCu	Fe540	R55	11550

Specification :

Mechanical properties :

- σ_B - Tensile strength , [MPa]
- σ_T - Yield stress , [MPa]
- δ₅ - Specific elongation at fracture , [%]
- ψ - Reduction of area , [%]
- KCU - Impact strength , [kJ / m²]
- HB - Brinell hardness , [MPa]

Physical properties :

- T - Test temperature , [Grade]
- E - Young modulus , [MPa]
- α - Coefficient of linear expansion (range 20° - T) , [1/Grade]
- λ - Thermal (heat) condition coefficient , [Watt/(m·Grade)]
- ρ - Density , [kg/m³]
- C - Specific heat (range 20° - T) , [J/(kg·Grade)]
- R - Electrical resistance , [Ohm·m]

Weldability :

- without limitations** - welding is done without heating and subsequent heat treating
- limited weldability** - welding is possible under heating up to 100-120 grade and subsequent heat treating
- hard weldability** - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treating is annealing

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more than 2500 steels and alloys (stainless steel, alloy steel, carbon steel, structural steel, tool steel, cast iron, aluminum alloy, titanium alloy, copper alloy, nickel alloy, magnesium alloy and others).
Helpfull for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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